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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Laurent Saint-Jalmes

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EXAMINER

SHTERENGARTS, SAMANTHA L

ART UNIT

PAPER NUMBER

4131

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/519,287	Applicant(s) SAINT-JALMES, LAURENT	
	Examiner SAMANTHA SHTERENGARTS	Art Unit 4131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-26 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>27 March 2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 15-26 are currently pending in the instant application.

Priority

2. The instant application is a national stage entry of PCT/FR03/01940.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on March 27, 2008 was in compliance with the provisions of 37 CFR 1.97 and 37 CFR 1.98. The IDS document was considered. A signed copy of form 1449 is enclosed herewith.

Election/Restrictions

4. Upon further consideration, Examiner has decided to withdrawn the Election of Species requirement.

Claim Objections

5. Claim 20 objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n).

Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 112

(First Paragraph)

The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 15-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 recites the limitation, “derivatives” in reference to the instantly claimed radicals and their “derivatives.” Applicant has not described the claimed genus of “derivatives” in a manner that would indicate they were in possession of the full scope of this genus, or even to describe what this genus is comprised of. The instant specification does not contain any guidance or description drawn to these “derivatives,” as well as the methods of preparation and isolation of these “derivatives.” There is insufficient description for Examiner to even determine the scope of the genus encompasses by the term “derivatives.” Applicant has not described the claimed genus “derivatives” in a manner that would indicate they were in possession of the full scope of said genus.

Regarding the requirement for adequate written description of chemical entities, Applicant’s attention is directed to the MPEP §2163. In particular, *Regents of the University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 1568 (Fed. Cir. 1997), cert. denied, 523 U.S. 1089, 118 S. Ct. 1548 (1998), holds that an adequate written description requires a precise definition, such as by structure, formula, chemical name, or physical properties, “not a mere wish or plain

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for obtaining the claimed chemical invention.” Eli Lilly, 119 F.3d at 1566. The Federal Circuit has adopted the standard set forth in the Patent and Trademark Office (“PTO”) Guidelines for Examination of Patent Applications under the 35 U.S.C. 112.1 “Written Description” Requirement (“Guidelines”), 66 Fed. Reg. 1099 (Jan. 5, 2001), which state that the written description requirement can be met by “showing that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics,” including, *inter alia*, “functional characteristics when coupled with a known or disclosed correlation between function and structure...” Enzo Biochem, Inc. v. Gen-Probe Inc., 296 F.3d 316, 1324-25 (Fed. Cir. 2002) (quoting Guidelines, 66 Fed. Reg. at 1106 (emphasis added)). Moreover, although Eli Lilly and Enzo were decided within the factual context of DNA sequences, this does not preclude extending the reasoning of those cases to chemical structures in general. Univ. of Rochester v. G.D. Searle & Co., 249 Supp. 2d 216, 225 (W.D.N.Y. 2003).

In the instant case, the claimed “derivatives” encompass any compound that contains the identical hydrofluoromethylenesulfonyl radical core as the instantly claimed compound, with a differing of substituents quoted for the identical purpose. Applicants describe no “derivatives” other than the difluoromethanesulfinic or sulfonic acid derivatives mentioned in the specification, which are not described adequately enough to allow one skilled in the art to ascertain that Applicant is in possession of the entire scope of the genus. Applicants have not described this genus in a manner that would allow one skilled in the art to immediately envisage the compounds contemplated for use. As such, the claims lack adequate written description for the claimed “derivatives.”

(Second Paragraph)

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 15-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 15 and 22 recite the term, "equivalents." It is unclear to one of skill in the art whether these equivalents are being measured in moles, percentages, weights, or some other unit. There is no definition in the instant specification to clarify the scope of this term, as it does not clearly point out subject matter which Applicant regards as the instantly claimed invention.

8. Claim 15 recites the limitation "said aqueous phase" in step b), line 4. There is insufficient antecedent basis for this limitation in the claim. It is unclear whether Applicant is referring to the aqueous phase during oxidation, the aqueous phase of the solvent, or the aqueous phase of the two-phase combination of a water-immiscible solvent.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 15-26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Janin et al., U.S. Patent No. 6,316,636, referred to as '636 for the rest of the instant action.

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Janin et al. teaches a hydrofluoromethylenesulfonyl radical in column 5, line 7, when it discloses a hydrocarbonylchalcogenyl group and further in line 18, a hydrocarbon radical. This anticipates instant claim 15, and the hydrofluoromethylenesulfonyl radical as claimed. The -fluoro limitation of the instant application is inherent in '636 as the patent is drawn to fluorocarbon compounds. Additionally, in column 1, line 55, '636 discloses that "it is desired to obtain derivatives fluorinated on a carbon atom of an alkyl radical rendered electron deficient by the presence of election-withdrawing groups."

The first process step in instant claim 15 wherein the synthesis begins with the condensation in a solvent an alkyl thiolate and an associated cation with a compound exhibiting a carbon of sp^3 hybridization carrying a hydrogen, a fluorine, a heavy halogen, selected form the group consisting of chlorine, bromine, and iodine, and an electron-withdrawing group which is fluorine or a group having a Hammett constant value of at least equal to 0.2, is disclosed throughout '636 in various steps. The condensation of an alkyl (cation) thiolate (anion) in a solvent is exemplified in column 14, line 33, "The organic phase was washed... [with] water and dried over magnesium sulfate. The solvent was evaporated off to provide 68g of sulfide which could be purified by distillation. [Distillation and purification are commonly known to be synonymous with condensation.] As discussed above, column 3 of '636 discloses that "the present invention does not feature exchanges with metal fluorides, which may be expressed by the fact that the amount of alkali metal cations must be at least equal to once that of hydrogen in the form of free proton (cation), released halohydric acid or base-HF. The sp^3 hybridized carbon compound carrying a H, F, a heavy halogen, and EWG which is F, is disclosed in column 3, line 53, in the description of the "synthesis of fluorocarbon compounds, comprising reacting a

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substrate containing at least one sp^3 -hybridized halophoric carbon atoms bearing at least 2 halogen atom substituents, at least one of which is a halogen atom having an atomic number greater than that of fluorine, said at least one halophoric carbon atom being bonded to at least one chalcogen." It is inherent that a halogen with a higher atomic number than fluorine will be a heavy halogen. The electron-withdrawing group is discussed in detail in column 9 of '636, lines 28-48. This description teaches the importance of the EWG containing fluorine, as instantly claimed.

The second process step in instant claim 15 in which the compound formed in step a) is oxidized in the presence of an aqueous phase; said solvent of a) being a water-immiscible solvent, an aqueous phase or a two-phase combination of a water-immiscible solvent and of an aqueous phase, said aqueous phase comprising at most $\frac{1}{3}$ by weight of water-miscible non-aqueous solvent; with a ratio of the amount, in equivalents, of the alkyl sulfide to the amount, in moles, of water being at most equal to 50. In '636 column 8, line 2 "the oxidation of the compounds according to the invention may be carried out using peroxides and, in particular, those of hydrogen (aqueous hydrogen peroxide solution and various hydroperoxides." Peroxides such as alkyl peroxides and hydroperoxides are water-immiscible due to their reaction with water. The hydrogen peroxide employed in the prior art is in the aqueous phase. In column 8, line 35 teaches the halogenation of the reaction occurring where the "content in water represents at most $\frac{1}{3}$ in mole of the substrate," which is at most equal to half.

Instant claim 16 teaches the process of claim 15 wherein the aqueous medium of a) comprises a strong base where the pKa of the associated acid is at least equal to 10, in an amount, expressed in equivalents, of at least equal to 5% of the amount of said thiolate. This is

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taught in '636, column 10, line 53, "The reaction is carried out under conditions and according to techniques per se known to this art, using strong bases whose pKa of the associated acid is advantageously at least equal to 14." The second limitation is taught in column 2, line 58 "at least one reactant which comprises the combination of a Bronsted base with a defined amount n of hydrofluoric acid, n being at least equal to 3, and at most equal to 20. Three divided by twenty is 15%, which is greater than at least equal to 5% of said thiolate.

Instant claim 18 teaches a process of claim 16, wherein the solvent further contains a polar solvent as taught in '636, column 1, line 51, "dipolar aprotic solvents" with a molar ratio of the amount of said polar solvent, expressed in moles, to the sum, expressed in equivalents, of the co-cations of the sulfide and of the base is at most equal to 1.

Instant claims 19 and 21 are drawn to the process of claim 15 wherein the election-withdrawing group is fluorine. As discussed above, the election-withdrawing group is discussed in column 9, lines 28-48, which teach halogen atoms as preferable EWG, and exemplify fluorine as an ideal EWG.

Instant claim 23 teaches the process as in claim 15, wherein said cation is monovalent. The cation is an alkali metal in the transition metal group I of the periodic table of elements, and these metals are most comfortable with a valence of 1+ electron.

Instant claim 24 is drawn to the process of claim 23, wherein said cation is phosphonium, a quaternary ammonium, or an alkali metal. Prior art reference '636 teaches this limitation in column 3, line 60, which discusses alkali metals as cations.

Instant claim 26 is drawn to the process of claim 15, wherein the process is carried out at a temperature at least equal to 80°C. This is taught in '636 column 3, line 5, "the reaction

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temperature ranges from the melting point of the reaction mixture to its decomposition or boiling point, generally from 0°C to 150°C.

Conclusion

10. No claims are allowed.
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samantha Shterengarts whose telephone number is (571)270-5316. The examiner can normally be reached on Monday thru Thursday, 9AM – 6PM Est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisors, Cecilia Tsang and Janet Andres can be reached on 571-272-0562 and 571-272-0867, respectively. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SAMANTHA SHTERENGARTS/
Examiner, Art Unit 4131

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